```
? logon

*** It is now 2009/07/22 09:38:14 ***
 (Dialog time 2009/07/22 08:38:14)

Preferences:
1.  Default save option: [TEXT]
2.  Graphic Images.
      Maximum width in pixels : [624]
      Maximum height in pixels: [624]
3.  Hold output position (don't scroll to the output buffer end): [No]
4.  Command separators (add HR after every command): [No]
5.  Type separators (add HR after every record): [Yes]
6.  Linking Pane: [Right]
7.  Status location.
      Below Type ahead buffer : [No]
      In Browser status line: [No]
8.  Show Estimated Cost Summary: [Yes]
9. Highlight Search Terms: [Yes]
10. Display Detailed Results by Search Term: [Yes]
11. Show Results by File (multifile search): [Yes]
12. Display Postings: [No]
14. Expand Items: 25
15. Hold Expand output position (don't scroll to the output buffer end): [No]
16. KWIC Window: 50
17. Output Cost Notification: [No]
18. Prompt for Subaccount at Logon: [No]
19. Hide History Tab: [No]
20. Show Preferences at Login: [Yes]
21. Show hyphen(s) in display set command : [Yes]

SUPERBIO is set ON as an alias for 155 73 5 35 65
HILIGHT set on as ''  ''
DETAIL set on
KWIC is set to 50.

? b superbio

       22jul09 07:38:23 User294085 Session D209.1
            $0.00    0.249 DialUnits File415
     $0.00  Estimated cost File415
     $0.03  INTERNET
     $0.03  Estimated cost this search
     $0.03  Estimated total session cost   0.249 DialUnits

SYSTEM:OS  - DIALOG OneSearch
  File 155:MEDLINE(R) 1950-2009/Jul 20
         (c) format only 2009 Dialog
  File  73:EMBASE 1974-2009/Jul 20
         (c) 2009 Elsevier B.V.
*File  73: EMBASE Classic available to all Dialog customers.
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See HELP NEWS 772 for information.
  File   5:Biosis Previews(R) 1926-2009/Jul W2
         (c) 2009 The Thomson Corporation
  File  35:Dissertation Abs Online 1861-2009/Jun
         (c) 2009 ProQuest Info&Learning
  File  65:Inside Conferences 1993-2009/Jul 21
         (c) 2009 BLDSC all rts. reserv.

      Set  Items  Description
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? e au=kuroda, akio

Ref   File    Items   Total  Index-term
E1       5                1  AU=KURODA/TOKUBEI
E2      65              113  AU=KURODA, A.
E3  -------               0 *AU=KURODA, AKIO
E4      65               31  AU=KURODA, C.
E5      65                1  AU=KURODA, C. K.
E6      65                5  AU=KURODA, C. S.
E7      65                1  AU=KURODA, C.S.
E8      65               48  AU=KURODA, D.
E9      65                2  AU=KURODA, D. A.
E10     65                5  AU=KURODA, D. R.
E11     35                1  AU=KURODA, DANIEL GUSTAVO
E12     65               26  AU=KURODA, E.
E13     65                3  AU=KURODA, F.
E14     65                3  AU=KURODA, G.
E15     65              239  AU=KURODA, H.
E16     65                6  AU=KURODA, H. ET AL.
E17     35                1  AU=KURODA, HIROMOTO
E18     65              178  AU=KURODA, I.
E19     65               28  AU=KURODA, J.
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E23     65                6  AU=KURODA, K.-I.
E24     65                1  AU=KURODA, K.O.
E25     35                1  AU=KURODA, KAZUO

Enter P or PAGE for more? s e2 and atp

155: MEDLINE(R)_1950-2009/Jul 20
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         118852  ATP
              0  AU='KURODA, A.' AND ATP

 73: EMBASE_1974-2009/Jul 20
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         100812  ATP
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          172759  ATP
               0  AU='KURODA, A.' AND ATP

 35: Dissertation Abs Online_1861-2009/Jun
               0  AU=KURODA, A.
            7606  ATP
               0  AU='KURODA, A.' AND ATP

 65: Inside Conferences_1993-2009/Jul 21
             113  AU=KURODA, A.
            1874  ATP
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>>> Retrying request [1]
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or phosphotransferase or (diphosphate (w) kinase)) and amp and (polyphosphate or
phosphate)

Processing
155: MEDLINE(R)_1950-2009/Jul 20
           35980  ADENYLATE
          297288  KINASE
            2545  ADENYLATE(W)KINASE
             200  ADK
            2573  POLYPHOSPHATE
          297288  KINASE
             171  POLYPHOSPHATE(W)KINASE
             267  PPK
            6181  PHOSPHOTRANSFERASE
           49507  DIPHOSPHATE
          297288  KINASE
            1654  DIPHOSPHATE(W)KINASE
          102536  AMP
          118852  ATP
            2573  POLYPHOSPHATE
          169926  PHOSPHATE
              25  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

 73: EMBASE_1974-2009/Jul 20
           35708  ADENYLATE
          309524  KINASE
            2576  ADENYLATE(W)KINASE
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          169  ADK
         3017  POLYPHOSPHATE
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          150  POLYPHOSPHATE(W)KINASE
          249  PPK
        16431  PHOSPHOTRANSFERASE
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       100812  ATP
       101248  AMP
         3017  POLYPHOSPHATE
       211034  PHOSPHATE
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       380469  KINASE
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          318  PPK
         7850  PHOSPHOTRANSFERASE
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       130447  AMP
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               OR PHOSPHATE)

 35: Dissertation Abs Online_1861-2009/Jun
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        15594  KINASE
          121  ADENYLATE(W)KINASE
           39  ADK
          311  POLYPHOSPHATE
        15594  KINASE
           18  POLYPHOSPHATE(W)KINASE
           25  PPK
          434  PHOSPHOTRANSFERASE
          799  DIPHOSPHATE
        15594  KINASE
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            64  DIPHOSPHATE(W)KINASE
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           311  POLYPHOSPHATE
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             1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
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 65: Inside Conferences_1993-2009/Jul 21
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           562  POLYPHOSPHATE(W)KINASE
           864  PPK
         30951  PHOSPHOTRANSFERASE
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                 OR PHOSPHATE)

? s s2 and (amplification or amplified or detect or detecting or detecting)

155: MEDLINE(R)_1950-2009/Jul 20
             25  S2
         159754  DETECT
          72109  AMPLIFICATION
          55773  AMPLIFIED
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 73: EMBASE_1974-2009/Jul 20
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         146437  DETECT
         104195  AMPLIFICATION
          76258  DETECTING
              1  S2 AND (AMPLIFICATION OR AMPLIFIED OR DETECT OR DETECTING
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 35: Dissertation Abs Online_1861-2009/Jun
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           8804  DETECTING
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                 OR DETECTING)

 65: Inside Conferences_1993-2009/Jul 21
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           5815  DETECTING
           3228  AMPLIFICATION
           1429  AMPLIFIED
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           5815  DETECTING
              0  S2 AND (AMPLIFICATION OR AMPLIFIED OR DETECT OR DETECTING
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                    OR DETECTING)

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          468844  DETECT
          234619  DETECTING
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? rd

      S4       1  RD  (unique items)

? t s4/3/all

Dialog eLink:
4/3/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)
(c) format only 2009 Dialog. All rights reserved.

16003708   PMID: 15215583
ATP amplification for ultrasensitive bioluminescence assay: detection of a single
bacterial cell.

Satoh Tetsuya; Kato Junichi; Takiguchi Noboru; Ohtake Hisao; Kuroda Akio
Department of Molecular Biotechnology, Graduate School of Advanced Sciences of
Matter, Hiroshima University.
Bioscience, biotechnology, and biochemistry ( Japan )   Jun 2004 ,   68 (6) p1216-
20 ,  ISSN: 0916-8451--Print   Journal Code: 9205717
Publishing Model Print
Document type: Journal Article; Research Support, Non-U.S. Gov't
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed


? s s2 and assay

155: MEDLINE(R)_1950-2009/Jul 20
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               5  S2 AND ASSAY

 73: EMBASE_1974-2009/Jul 20
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          439654  ASSAY
               4  S2 AND ASSAY

  5: Biosis Previews(R)_1926-2009/Jul W2
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              4  S2 AND ASSAY

 35: Dissertation Abs Online_1861-2009/Jun
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 65: Inside Conferences_1993-2009/Jul 21
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              0  S2 AND ASSAY

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      S5     13  S2 AND ASSAY

? rd

      S6      7  RD  (unique items)

? t s6/k/all
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6/K/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

ATP amplification for ultrasensitive bioluminescence assay: detection of a single bacterial cell.

We developed an ultrasensitive bioluminescence assay of ATP by employing (i) adenylate kinase (ADK) for converting AMP + ATP to two molecules of ADP, (ii) polyphosphate (polyP) kinase (PPK) for converting ADP back to ATP (ATP amplification), and (iii) a commercially available firefly luciferase. A highly purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels of bioluminescence in the firefly luciferase reaction. The present method, which was approximately 10,000-fold more sensitive to ATP than the conventional bioluminescence assay, allowed us to detect bacterial contamination as low as one colony-forming unit (CFU) of Escherichia coli per assay. (
Descriptors: ; Adenylate Kinase; Bacteria--cytology--CY; Escherichia coli --cytology--CY; Escherichia coli--isolation and purification--IP; Escherichia coli Proteins; Luciferases; Luminescent Measurements--standards --ST; Phosphotransferases (Alcohol Group Acceptor...
Named Person:
Enzyme No.: EC 1.13.12.- (Luciferases); EC 2.7.1.- (Phosphotransferases (Alcohol Group Acceptor)); EC 2.7.4.1 (polyphosphate kinase, E coli) ; EC 2.7.4.3 (Adenylate Kinase)
Chemical Name: Escherichia coli Proteins; Recombinant Fusion Proteins; Adenosine Triphosphate; Luciferases; Phosphotransferases (Alcohol Group Acceptor); polyphosphate kinase, E coli; Adenylate Kinase

6/K/2 (Item 2 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

The evidence for two opposite, ATP-generating and ATP -consuming, extracellular pathways on endothelial and lymphoid cells.

...1) ecto-nucleotidases, NTP diphosphohydrolase/CD39 (EC 3.6.1.5) and ecto-5'-nucleotidase/CD73 (EC 3.1.3.5); (2) ecto-nucleotide kinases, adenylate kinase (EC 2.7.4.3) and nucleoside diphosphate kinase (EC 2.7.4.6); (3) ecto-adenosine deaminase (EC 3.5.4.4). Evidence for this was obtained by using enzyme assays with (3)H-labelled nucleotides and adenosine as substrates, direct evaluation of gamma-phosphate transfer from [gamma-(32)P]ATP to AMP /NDP, and bioluminescent measurement of extracellular ATP synthesis. In addition, incorporation of radioactivity into an approx. 20 kDa surface protein was observed following incubation of Namalwa B cells with [gamma-(32)P]ATP. Thus two opposite, ATP-generating and ATP-consuming, pathways coexist on the cell surface, where basal ATP release, re-synthesis of high-energy phosphoryls, and selective ecto-protein phosphorylation are counteracted by stepwise nucleotide breakdown with subsequent adenosine inactivation. The comparative measurements of enzymic activities indicated the predominance of the nucleotide-inactivating pathway via ecto-nucleotidase reactions on the endothelial cells. The lymphocytes are characterized by counteracting ATP-regenerating/adenosine-eliminating phenotypes, thus allowing them to avoid the lymphotoxic effects of adenosine and maintain surrounding ATP at a steady-state level. These results are in agreement with divergent effects of ATP and adenosine on endothelial function and haemostasis, and provide a novel regulatory mechanism of local agonist availability for nucleotide- or nucleoside-selective receptors within the ... (
Descriptors: ; 5'-Nucleotidase--biosynthesis--BI; Adenosine--metabolism--ME; Adenosine Deaminase--chemistry--CH; Cell Membrane--metabolism--ME; Cells, Cultured; Endothelium, Vascular--cytology--CY; Enzyme-Linked Immunosorbent Assay; Flow Cytometry; Humans; Immunoblotting; Jurkat Cells; Kinetics; Lymphocytes--metabolism--ME; Models, Biological; Phosphorylation; Purines--metabolism--ME; Radioligand Assay; Time Factors; Tumor Cells, Cultured
Named Person:

6/K/3 (Item 3 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

Extracellular ATP formation on vascular endothelial cells is mediated by ecto-nucleotide kinase activities via phosphotransfer reactions.

Cell surface ecto-nucleotidases are considered the major effector system for inactivation of extracellular adenine nucleotides, whereas the alternative possibility of ATP synthesis has received little attention. Using a TLC assay, we investigated the main exchange activities of 3H-labeled adenine nucleotides on the cultured human umbilical vein endothelial cells. Stepwise nucleotide degradation to adenosine occurred when a particular nucleotide was present alone, whereas combined cell treatment with ATP and either [3H]AMP or [3H]ADP caused unexpected

phosphorylation of 3H-nucleotides via the backward reactions AMP --> ADP --> ATP. The following two groups of nucleotide-converting ecto-enzymes were identified based on inhibition and substrate specificity studies: 1) ecto-nucleotidases, ATP-diphosphohydrolase, and 5'-nucleotidase; 2) ecto-nucleotide kinases, adenylate kinase, and nucleoside diphosphate kinase. Ecto-nucleoside diphosphate kinase possessed the highest activity, as revealed by comparative kinetic analysis, and was capable of using both adenine and nonadenine nucleotides as phosphate donors and acceptors. The transphosphorylation mechanism was confirmed by direct transfer of the gamma-phosphate from [gamma-32P]ATP to AMP or nucleoside diphosphates and by measurement of extracellular ATP synthesis using luciferin-luciferase luminometry. The data demonstrate the coexistence of opposite, ATP-consuming and ATP-generating, pathways on the cell surface and provide a novel mechanism for regulating the duration and magnitude of purinergic signaling in the vasculature. (

Descriptors: *Adenosine Triphosphate--metabolism--ME; *Endothelium, Vascular--enzymology --EN; *Membrane Proteins--metabolism--ME; *Phosphates--metabolism--ME; *Phosphotransferases (Phosphate Group Acceptor)--metabolism--ME ; ...metabolism--ME; Adenosine--metabolism--ME; Adenosine Diphosphate --metabolism--ME; Adenosine Diphosphate--pharmacology--PD; Adenosine Monophosphate--metabolism--ME; Adenosine Monophosphate--pharmacology--PD; Adenosine Triphosphate--biosynthesis--BI; Adenylate Kinase --metabolism--ME; Apyrase--metabolism--ME; Cells, Cultured; Chromatography, Thin Layer; Dose-Response Relationship, Drug; Endothelium, Vascular --cytology--CY; Endothelium, Vascular--metabolism--ME; Humans; Kinetics; Luminescent Measurements; Nucleoside-Diphosphate Kinase --metabolism--ME; Phosphorylation--drug effects--DE; Substrate Specificity

Named Person:

Enzyme No.: EC 2.7.4.- (Phosphotransferases (Phosphate Group Acceptor)); EC 2.7.4.3 (Adenylate Kinase); EC 2.7.4.6 (Nucleoside- Diphosphate Kinase); EC 3.1.3.5 (5'-Nucleotidase); EC 3.6.1.5 (Apyrase)

Chemical Name: Membrane Proteins; Phosphates; Adenosine Triphosphate; Adenosine; Adenosine Diphosphate; Adenosine Monophosphate; Adenine; Phosphotransferases (Phosphate Group Acceptor); Adenylate Kinase; Nucleoside-Diphosphate Kinase; 5'-Nucleotidase; Apyrase

6/K/4 (Item 4 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

In vitro ATP regeneration from polyphosphate and AMP by polyphosphate:AMP phosphotransferase and adenylate kinase from Acinetobacter johnsonii 210A.

In vitro enzyme-based ATP regeneration systems are important for improving yields of ATP-dependent enzymatic reactions for preparative organic synthesis and biocatalysis. Several enzymatic ATP regeneration systems have been described but have some disadvantages. We report here on the use of polyphosphate:AMP phosphotransferase (PPT) from Acinetobacter johnsonii strain 210A in an ATP regeneration system based on the use of polyphosphate (polyP) and AMP as substrates. We have examined the substrate specificity of PPT and demonstrated ATP regeneration from AMP and polyP using firefly luciferase and hexokinase as model ATP -requiring enzymes. PPT catalyzes the reaction polyP(n) + AMP --> ADP + polyP(n-1). The ADP can be converted to ATP by adenylate kinase (AdK). Substrate specificity with nucleoside and 2'-deoxynucleoside monophosphates was examined using partially purified PPT by

measuring the formation of nucleoside diphosphates with high-pressure liquid chromatography. AMP and 2'-dAMP were efficiently phosphorylated to ADP and 2'-dADP, respectively. GMP, UMP, CMP, and IMP were not converted to the corresponding diphosphates at significant rates. Sufficient AdK and PPT activity in A. johnsonii 210A cell extract allowed demonstration of polyP-dependent ATP regeneration using a firefly luciferase-based ATP assay. Bioluminescence from the luciferase reaction, which normally decays very rapidly, was sustained in the presence of A. johnsonii 210A cell extract, MgCl(2), polyP(n=35), and AMP. Similar reaction mixtures containing strain 210A cell extract or partially purified PPT, polyP, AMP, glucose, and hexokinase formed glucose 6- phosphate. The results indicate that PPT from A. johnsonii is specific for AMP and 2'-dAMP and catalyzes a key reaction in the cell-free regeneration of ATP from AMP and polyP. The PPT/ AdK system provides an alternative to existing enzymatic ATP regeneration systems in which phosphoenolpyruvate and acetylphosphate serve as phosphoryl donors and has the advantage that AMP and polyP are stabile, inexpensive substrates. (
Descriptors: *Acinetobacter--enzymology--EN; *Adenosine Monophosphate--metabolism--ME; *Adenosine Triphosphate--metabolism--ME; *Adenylate Kinase --metabolism--ME; *Phosphotransferases (Phosphate Group Acceptor) --metabolism--ME; *Polyphosphates--metabolism--ME
Enzyme No.: EC 2.7.4.- (Phosphotransferases (Phosphate Group Acceptor)); EC 2.7.4.- (polyphosphate AMP phosphotransferase); EC 2.7.4.3 (Adenylate Kinase)
Chemical Name: Polyphosphates; Adenosine Triphosphate; Adenosine Monophosphate; Phosphotransferases (Phosphate Group Acceptor); polyphosphate AMP phosphotransferase; Adenylate Kinase

6/K/5 (Item 5 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

...NDK) of human platelets has been purified by chromatography on Blue Sepharose CL-6B gel (purification factor of 950) and shown to be free of adenylate kinase, ATPase and adenylate cyclase. The molecular weight was 70,000 with subunits of 17,000. The pH optimum was 8.0 Km values for ATP and dTDP were determined in two ways using the pyruvate kinase-lactate dehydrogenase coupled enzyme assay. Values of 0.38 and 0.20 mM were obtained for ATP and 0.29 and 0.21 mM for dTDP. Km values for ADP (0.024 mM) and GTP (0.12 mM) were determined with the hexokinase-glucose-6-phosphate dehydrogenase coupled enzyme assay. These values are in agreement with those reported for NDK from other sources. Theophylline, which inhibits the NDK activity of intact platelets and platelet membrane... (
Descriptors: *3',5'-Cyclic-AMP Phosphodiesterases--antagonists and inhibitors--AI ; *Blood Platelets--enzymology--EN; *Nucleoside-Diphosphate Kinase--blood--BL; *Phosphotransferases--blood--BL ; Adenosine Diphosphate--metabolism--ME; Adenosine Triphosphate--metabolism --ME; Blood Platelets--drug effects--DE; Guanosine Triphosphate--metabolism --ME; Humans; Hydrogen-Ion Concentration; Kinetics; Molecular Weight; Nucleoside-Diphosphate Kinase--antagonists and inhibitors--AI ; Nucleoside-Diphosphate Kinase--isolation and purification --IP; Papaverine--pharmacology--PD; Theophylline--pharmacology--PD; Thymine Nucleotides--metabolism--ME
Named Person:
Enzyme No.: EC 2.7.- (Phosphotransferases); EC 2.7.4.6 (Nucleoside- Diphosphate Kinase); EC 3.1.4.17 (3',5'-Cyclic-AMP Phosphodiesterases)

Chemical Name: Thymine Nucleotides; thymidine 5'-diphosphate; Adenosine Triphosphate; Theophylline; Adenosine Diphosphate; Papaverine; Guanosine Triphosphate; Phosphotransferases; Nucleoside-Diphosphate Kinase; 3',5'-Cyclic-AMP Phosphodiesterases

6/K/6 (Item 1 from file: 73)
DIALOG(R)File 73: EMBASE

Adenylate kinase (AKs) are ubiquitous monomeric phosphotransferases catalyzing the reversible reaction, AMP + MgATP = ADP + MgADP, which plays a pivotal role in the energetic metabolism. In vertebrates, six AK isoforms are known. In this work, we report the... ...those AK isozymes that follow the cited reaction, especially onto NC where bands are sharper due to the absence of protein diffusion. In contrast, GTP: AMP phosphotransferases are not detectable. AK activity from many sources can be detected in both its reaction courses; ATP production appears as dark-blue bands, while ADP formation appears as nonfluorescent bands over a fluorescent background, under long-wavelength UV light. We show that...
Drug Descriptors:
* adenylate kinase--endogenous compound--ec
adenosine diphosphate--endogenous compound--ec; adenosine triphosphate --endogenous compound--ec; isoenzyme--endogenous compound--ec; phosphotransferase--endogenous compound--ec; reactive oxygen metabolite--endogenous compound--ec
Medical Descriptors:
* enzyme assay; *polyacrylamide gel electrophoresis

Drug Terms (Uncontrolled): adenosine phosphate phosphotransferase--endogenous compound --ec; guanosine triphosphate phosphotransferase--endogenous compound --ec
Medical Terms (Uncontrolled):
CAS Registry Number: ...987-65-5 (adenosine triphosphate); 9013-02-9 (adenylate kinase); 9031-09-8... ...9031-44-1 (phosphotransferase)
SECTION HEADINGS:

6/K/7 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)

The participation of GTP-AMP-P transferase in substrate level phosphate transfer of rat liver mitochondria

Abstract: ...kinetic studies on the reaction sequence of substrate level phosphorylation in rat liver mitochondria, using anaerobic ketoglutarate dismutation in the presence of oligomycin and [p32] phosphate, phosphohistidine appears to be the first intermediate to be labelled, followed by GTP. [p32]ADP rather than [p32] ATP is shown to be the main product of the reaction. The phosphorylation of AMP requires ketoglutarate and is stimulated by 2,4-dinitrophenol. GTP-AMP-P transferase is localized in the mitochondria. This conclusion is based on enzymatic assays of fractionally extracted rat liver and of isolated mitochondria and microsomes. Mean

values for the activities of GTP- AMP-P transferase, nucleoside diphosphate kinase and succinic thiokinase in rat liver mitochondria are given and are compared with the rate of ketoglutarate oxidation. A possible function of GTP- AMP-P transferase for the phosphorylation of endo-genous AMP is discussed with regard to the compartmentation of nucleotides in the mitochondria. A new chromatographic assay for GTP-AMP-P transferase is reported, an assay which is not af-fected by nucleoside diphosphate kinase and adenylate kinase occurring in liver homogenates. An optical enzymatic assay for nucleoside di-phosphate kinase is also described. ABSTRACT
AUTHORS: Authors
Registry Numbers: ...ATP; ... ...adenylate kinase; ... ...AMP; ... ...nucleoside diphosphate kinase; ... ...phosphate
Enzyme Commission Number: ...adenylate kinase;
DESCRIPTORS:
 Chemicals & Biochemicals: ATP; ... ...adenylate kinase; ... ...di-phosphate; AMP; ... ...nucleoside diphosphate kinase; phosphate; ... ...nucleoside di-phosphate kinase

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? s s2 and fusion

155: MEDLINE(R)_1950-2009/Jul 20
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          168402  FUSION
               3  S2 AND FUSION

 73: EMBASE_1974-2009/Jul 20
              31  S2
           97861  FUSION
               3  S2 AND FUSION

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               2  S2 AND FUSION

 35: Dissertation Abs Online_1861-2009/Jun
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 65: Inside Conferences_1993-2009/Jul 21
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TOTAL: FILES 155,73,5 and ...
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      S7       8  S2 AND FUSION

? rd
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S8 4 RD (unique items)

? t s8/k/all

8/K/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

ATP amplification for ultrasensitive bioluminescence assay: detection of a single bacterial cell.

We developed an ultrasensitive bioluminescence assay of ATP by employing (i) adenylate kinase (ADK) for converting AMP + ATP to two molecules of ADP, (ii) polyphosphate (polyP) kinase (PPK) for converting ADP back to ATP (ATP amplification), and (iii) a commercially available firefly luciferase. A highly purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels of bioluminescence in the firefly luciferase reaction. The present method, which was approximately 10,000-fold more sensitive to ATP than the conventional bioluminescence assay, allowed us to detect bacterial contamination as low as one colony-forming unit (CFU) of Escherichia coli per assay. (
Descriptors: ; Adenylate Kinase; Bacteria--cytology--CY; Escherichia coli --cytology--CY; Escherichia coli--isolation and purification--IP; Escherichia coli Proteins; Luciferases; Luminescent Measurements--standards --ST; Phosphotransferases (Alcohol Group Acceptor); Recombinant Fusion Proteins
Named Person:
Enzyme No.: EC 1.13.12.- (Luciferases); EC 2.7.1.- (Phosphotransferases (Alcohol Group Acceptor)); EC 2.7.4.1 (polyphosphate kinase, E coli) ; EC 2.7.4.3 (Adenylate Kinase)
Chemical Name: Escherichia coli Proteins; Recombinant Fusion Proteins; Adenosine Triphosphate; Luciferases; Phosphotransferases (Alcohol Group Acceptor); polyphosphate kinase, E coli; Adenylate Kinase

8/K/2 (Item 2 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

Nucleoside diphosphate kinase-like activity in adenylate kinase of Mycobacterium tuberculosis.

Ak (adenylate kinase) is a ubiquitous enzyme that catalyses a reversible high-energy phosphoryl-transfer reaction between ATP and AMP to form ADP. In the present study, the Ak gene (adk) of Mycobacterium tuberculosis was cloned, expressed in Escherichia coli and purified as a glutathione S-transferase fusion protein. Purified Ak converted AMP into ADP in the presence of [gamma-32P]ATP or [gamma-32P]GTP. Replacement of arginine-88 of adk with glycine resulted in the loss of enzymic activity. The purified protein also showed Ndk (nucleoside diphosphate kinase)-like activity as it transferred terminal phosphate from [gamma-32P]ATP to all nucleoside diphosphates, converting them into corresponding triphosphates. However, Ndk-like activity of Ak was not observed with [gamma-32P]GTP. Immunoblot analysis of various cellular fractions of M. tuberculosis H37Rv revealed that Ak is a cytoplasmic protein. The dual activity of Ak as both nucleoside mono- and di-phosphate kinases

suggested that this enzyme may have a role in RNA and DNA biosynthesis in addition to its role in intracellular nucleotide metabolism. (
Descriptors: *Adenylate Kinase--metabolism--ME; *Mycobacterium tuberculosis--enzymology--EN; *Nucleoside-Diphosphate Kinase --metabolism--ME ; Adenylate Kinase--genetics--GE; Adenylate Kinase--isolation and purification--IP; Amino Acid Sequence; Animals ; Arginine--chemistry--CH; Genetic Vectors; Molecular Sequence Data; Mycobacterium tuberculosis--chemistry--CH; Nucleoside-Diphosphate Kinase--genetics--GE; Nucleoside-Diphosphate Kinase --pharmacology--PD; Plasmids--genetics--GE
Named Person:
Enzyme No.: EC 2.7.4.3 (Adenylate Kinase); EC 2.7.4.6 (Nucleoside- Diphosphate Kinase)
Chemical Name: Arginine; Adenylate Kinase; Nucleoside-Diphosphate Kinase

8/K/3 (Item 3 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

The hepatitis B virus X protein is a potent AMP kinase.

The hepatitis B virus X-protein (HBx) has been expressed in Escherichia coli both as an unfused protein and with an N-terminal hexaHis-containing fusion sequence. Both forms of HBx, after purification, displayed a potent AMP kinase activity, in which HBx phosphorylates AMP to ADP, using ATP as the exclusive phosphate donor. We also found that HBx has previously unreported GTPase and GTP-ADP nucleoside diphosphate kinase activities. (
Descriptors: *Adenylate Kinase--analysis--AN; *Trans-Activators--analysis --AN
Enzyme No.: EC 2.7.4.3 (Adenylate Kinase); EC 3.6.1.- (GTP Phosphohydrolases)
Chemical Name: Trans-Activators; hepatitis B virus X protein; Adenylate Kinase; GTP Phosphohydrolases

8/K/4 (Item 1 from file: 73)
DIALOG(R)File 73: EMBASE

Adenylate kinase as a virulence factor of pseudomonas aeruginosa

Adenylate kinase (AK; ATP:AMP phosphotransferase, EC 2.7.4.3) is a ubiquitous enzyme that contributes to the homeostasis of adenine nucleotides in eukaryotic and prokaryotic cells. AK catalyzes the reversible reaction Mg . ATP + AMP (left right arrow) Mg . ADP + ADP. In this study we show that AK secreted by the pathogenic strains of Pseudomonas aeruginosa appears to play an... ...death. We purified and characterized AK from the growth medium of a cystic fibrosis isolate strain of P. aeruginosa 8821 and hyperproduced it as a fusion protein with glutathione S-transferase. We demonstrated enhanced macrophage cell death in the presence of both the secreted and recombinant purified AK and its substrates AMP plus ATP or ADP. These data suggested that AK converts its substrates to a mixture of AMP, ADP, and ATP, which are potentially more cytotoxic than ATP alone. In addition, we observed increased macrophage killing in the presence of AK and ATP alone. Since the presence of ATPase activity on the macrophages was confirmed in the present work, external

macrophage-effluxed ATP is converted to ADP, which in turn can be transformed by AK into a cytotoxic mixture of three adenine nucleotides. Evidence is presented in this... ...P. aeruginosa. Thus, the possible role of secreted AK as a virulence factor is in producing and keeping an intact pool of toxic mixtures of AMP, ADP, and ATP, which allows P. aeruginosa to exert its full virulence.
Drug Descriptors:
* adenylate kinase--endogenous compound--ec; *virulence factor --endogenous compound--ec
adenosine diphosphate--drug toxicity--to; adenosine phosphate--drug toxicity--to; adenosine triphosphate--drug toxicity--to; glutathione transferase; recombinant enzyme
Medical Descriptors:
CAS Registry Number: ...8063-98-7 (adenosine phosphate); 15237-44-2... ...987-65-5 (adenosine triphosphate); 9013-02-9 (adenylate kinase); 50812-37-8 (glutathione transferase)
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? ds

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                     HOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE OR PHOS-
                     PHATE)
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       73         0
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S8                 4   RD  (unique items)

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 35: Dissertation Abs Online_1861-2009/Jun
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 65: Inside Conferences_1993-2009/Jul 21
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? rd

     S10        3  RD  (unique items)

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10/K/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

...of ADP, (ii) polyphosphate (polyP) kinase (PPK) for converting ADP back to ATP (ATP amplification), and (iii) a commercially available firefly luciferase. A highly purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels of bioluminescence in the firefly luciferase reaction. The present method, which was approximately 10,000-fold... (

10/K/2 (Item 2 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

...been found to express a poly(P):AMP phosphotransferase activity by coupling with adenylate kinase (ADK) in E. coli. The ATP-regeneration system consisting of ADK, PPK, and poly(P) was shown to be promising for practical utilization of poly(P) as

ATP substitute. (

10/K/3 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)

Abstract: ...protein. Apyrase was immobilized on the surface of magnetic beads coated with polyurethane to provide Beads-apyrase to eliminate background caused by ADP bound to PPK-ADK. The exogenous ATP and microorganism were also detected by using ATP amplification reaction Coupled with bioluminescence assay. [Results] The purified fusion protein showed both ADK...

? t s10/3/all

Dialog eLink:
10/3/1 (Item 1 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

16003708 PMID: 15215583
ATP amplification for ultrasensitive bioluminescence assay: detection of a single bacterial cell.

Satoh Tetsuya; Kato Junichi; Takiguchi Noboru; Ohtake Hisao; Kuroda Akio
Department of Molecular Biotechnology, Graduate School of Advanced Sciences of Matter, Hiroshima University.
Bioscience, biotechnology, and biochemistry (Japan) Jun 2004 , 68 (6) p1216-20 , ISSN: 0916-8451--Print Journal Code: 9205717
Publishing Model Print
Document type: Journal Article; Research Support, Non-U.S. Gov't
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Dialog eLink:
10/3/2 (Item 2 from file: 155)
DIALOG(R)File 155: MEDLINE(R)

13692848 PMID: 10739474
Inorganic polyphosphate and polyphosphate kinase: their novel biological functions and applications.

Shiba T; Tsutsumi K; Ishige K; Noguchi T
Division of Molecular Chemistry, Graduate School of Engineering, Hokkaido University, Sapporo, 060-8628, Japan. shiba@dove-mc.eng.hokudai.ac.jp
Biochemistry. Biokhimii a (RUSSIA) Mar 2000 , 65 (3) p315-23 , ISSN: 0006-2979--Print Journal Code: 0376536

Publishing Model Print
Document type: Journal Article; Review
Languages: ENGLISH
Main Citation Owner: NLM
Record type: MEDLINE; Completed

Dialog eLink:
10/3/3 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)

0021071749 Biosis No.: 200900413186
Detection of low-level microorganism by concomitant use of ATP amplification and bioluminescence assay

Author: Chen Ying; Zou Bingjie; Zhu Shuhui; Ma Yinjiao; Zhou Guohua (Reprint)
Author Address: China Pharmaceut Univ, Sch Life Sci and Technol, Nanjing 210009, Peoples R China**Peoples R China
Author E-mail Address: chensiyu1123@163.com; ghzhou@nju.edu.cn
Journal: Weishengwu Xuebao 49 (6): p 826-830 JUN 4 2009 2009
ISSN: 0001-6209
Document Type: Article
Record Type: Abstract
Language: Chinese

? b medicine

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            $1.22  13 Types
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               $0.38  2 Type(s) in Format 95 (KWIC)
            $2.82  3 Types
    $10.89  Estimated cost File5
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     $0.84  Estimated cost File35
            $0.33    0.078 DialUnits File65
     $0.33  Estimated cost File65
            OneSearch, 5 files,  3.445 DialUnits FileOS
     $3.73  INTERNET
    $33.34  Estimated cost this search
    $33.37  Estimated total session cost   3.694 DialUnits
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  File 138:Physical Education Index 1990-2009/Jul
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  File 457:The Lancet 1992-2009/Jul W2
         (c) 2009 Elsevier Limited.All rights res
  File 467:ExtraMED(tm) 2000/Dec
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      S2     267  RD  (unique items)

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or ppk or phosphotransferase or (diphosphate (w) kinase)) and amp and (polyphosphate
or phosphate)

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           318  PPK
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         18794  DIPHOSPHATE
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           311  POLYPHOSPHATE
         15594  KINASE
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          0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
             ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
             OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
             OR PHOSPHATE)

45: EMCare_2009/Jul W2
          0  S2
        966  ADENYLATE
      21081  KINASE
        109  ADENYLATE(W)KINASE
          6  ADK
        122  POLYPHOSPHATE
      21081  KINASE
          2  POLYPHOSPHATE(W)KINASE
         13  PPK
       2861  PHOSPHOTRANSFERASE
       2883  DIPHOSPHATE
      21081  KINASE
         34  DIPHOSPHATE(W)KINASE
       3403  AMP
       4350  ATP
        122  POLYPHOSPHATE
      20018  PHOSPHATE
          0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
             ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
             OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
             OR PHOSPHATE)

65: Inside Conferences_1993-2009/Jul 21
          0  S2
        399  ADENYLATE
       7066  KINASE
         17  ADENYLATE(W)KINASE
         10  ADK
          5  PPK
        172  POLYPHOSPHATE
       7066  KINASE
          2  POLYPHOSPHATE(W)KINASE
         55  PHOSPHOTRANSFERASE
        194  DIPHOSPHATE
       7066  KINASE
         23  DIPHOSPHATE(W)KINASE
```

```
         1874  ATP
          172  POLYPHOSPHATE
         6198  PHOSPHATE
        30755  AMP
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

71: ELSEVIER BIOBASE_1994-2009/Jul W3
            0  S2
         6473  ADENYLATE
       153538  KINASE
          562  ADENYLATE(W)KINASE
          103  ADK
         1411  POLYPHOSPHATE
       153538  KINASE
          104  POLYPHOSPHATE(W)KINASE
          149  PPK
         2455  PHOSPHOTRANSFERASE
         5611  DIPHOSPHATE
       153538  KINASE
          526  DIPHOSPHATE(W)KINASE
        14712  AMP
         1411  POLYPHOSPHATE
        61784  PHOSPHATE
        49656  ATP
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

72: EMBASE_1993-2009/Jul 20
            0  S2
        17023  ADENYLATE
       264222  KINASE
         1539  ADENYLATE(W)KINASE
          125  ADK
         1907  POLYPHOSPHATE
       264222  KINASE
          124  POLYPHOSPHATE(W)KINASE
          215  PPK
        13547  PHOSPHOTRANSFERASE
        33339  DIPHOSPHATE
       264222  KINASE
         1056  DIPHOSPHATE(W)KINASE
        56453  AMP
        67348  ATP
         1907  POLYPHOSPHATE
       131116  PHOSPHATE
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
```

```
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

73: EMBASE_1974-2009/Jul 20
             0  S2
         35708  ADENYLATE
        309524  KINASE
          2576  ADENYLATE(W)KINASE
           169  ADK
          3017  POLYPHOSPHATE
        309524  KINASE
           150  POLYPHOSPHATE(W)KINASE
           249  PPK
         16431  PHOSPHOTRANSFERASE
         51182  DIPHOSPHATE
        309524  KINASE
          1261  DIPHOSPHATE(W)KINASE
        100812  ATP
        101248  AMP
          3017  POLYPHOSPHATE
        211034  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

91: MANTIS(TM)_1880-2009/Mar
             0  S2
            52  ADENYLATE
          1339  KINASE
             4  ADENYLATE(W)KINASE
             1  ADK
             7  POLYPHOSPHATE
          1339  KINASE
             0  POLYPHOSPHATE(W)KINASE
             2  PHOSPHOTRANSFERASE
             1  PPK
           191  DIPHOSPHATE
          1339  KINASE
             1  DIPHOSPHATE(W)KINASE
           173  AMP
           590  ATP
             7  POLYPHOSPHATE
          1028  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

98: General Sci Abs_1984-2009/Jul
            16  S2
           972  ADENYLATE
```

```
        16238  KINASE
          109  ADENYLATE(W)KINASE
           13  ADK
          193  POLYPHOSPHATE
        16238  KINASE
           34  POLYPHOSPHATE(W)KINASE
           20  PPK
          490  PHOSPHOTRANSFERASE
         1087  DIPHOSPHATE
        16238  KINASE
           62  DIPHOSPHATE(W)KINASE
         1891  AMP
          193  POLYPHOSPHATE
         7958  PHOSPHATE
         6757  ATP
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

135: NewsRx Weekly Reports_1995-2009/Jul W1
            0  S2
         1021  ADENYLATE
        53899  KINASE
          129  ADENYLATE(W)KINASE
           44  ADK
          168  POLYPHOSPHATE
        53899  KINASE
           15  POLYPHOSPHATE(W)KINASE
           34  PPK
          321  PHOSPHOTRANSFERASE
         1392  DIPHOSPHATE
        53899  KINASE
           88  DIPHOSPHATE(W)KINASE
         3907  AMP
          168  POLYPHOSPHATE
        12485  PHOSPHATE
        11184  ATP
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

138: Physical Education Index_1990-2009/Jul
            0  S2
            0  POLYPHOSPHATE
          727  KINASE
            0  POLYPHOSPHATE(W)KINASE
           11  DIPHOSPHATE
          727  KINASE
            0  DIPHOSPHATE(W)KINASE
            3  ADENYLATE
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             727  KINASE
               1  ADENYLATE(W)KINASE
               0  ADK
             146  AMP
             173  PHOSPHATE
             307  ATP
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

144: Pascal_1973-2009/Jul W3
               0  S2
           15117  ADENYLATE
          111316  KINASE
             906  ADENYLATE(W)KINASE
             115  ADK
            3481  POLYPHOSPHATE
          111316  KINASE
              95  POLYPHOSPHATE(W)KINASE
             157  PPK
            2905  PHOSPHOTRANSFERASE
           10921  DIPHOSPHATE
          111316  KINASE
             359  DIPHOSPHATE(W)KINASE
           38354  AMP
           57665  ATP
            3481  POLYPHOSPHATE
          128357  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

149: TGG Health&Wellness DB(SM)_1976-2009/Jun W3
               2  S2
             800  ADENYLATE
           16523  KINASE
              69  ADENYLATE(W)KINASE
              38  ADK
              82  POLYPHOSPHATE
           16523  KINASE
               8  POLYPHOSPHATE(W)KINASE
              17  PPK
             241  PHOSPHOTRANSFERASE
            1086  DIPHOSPHATE
           16523  KINASE
              32  DIPHOSPHATE(W)KINASE
            2487  AMP
            4879  ATP
              82  POLYPHOSPHATE
           11510  PHOSPHATE
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              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

154: MEDLINE(R)_1990-2009/Jul 20
              0  S2
          18484  ADENYLATE
         256263  KINASE
           1289  ADENYLATE(W)KINASE
            161  ADK
           1821  POLYPHOSPHATE
         256263  KINASE
            154  POLYPHOSPHATE(W)KINASE
            238  PPK
           3804  PHOSPHOTRANSFERASE
          28168  DIPHOSPHATE
         256263  KINASE
           1458  DIPHOSPHATE(W)KINASE
          59401  AMP
          85398  ATP
           1821  POLYPHOSPHATE
         106233  PHOSPHATE
              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

155: MEDLINE(R)_1950-2009/Jul 20
              0  S2
          35980  ADENYLATE
         297288  KINASE
           2545  ADENYLATE(W)KINASE
            200  ADK
           2573  POLYPHOSPHATE
         297288  KINASE
            171  POLYPHOSPHATE(W)KINASE
            267  PPK
           6181  PHOSPHOTRANSFERASE
          49507  DIPHOSPHATE
         297288  KINASE
           1654  DIPHOSPHATE(W)KINASE
         102536  AMP
         118852  ATP
           2573  POLYPHOSPHATE
         169926  PHOSPHATE
              0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

156: ToxFile_1965-2009/Jul W3
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            0  S2
         6841  ADENYLATE
        67811  KINASE
          292  ADENYLATE(W)KINASE
           34  ADK
          541  POLYPHOSPHATE
        67811  KINASE
           33  POLYPHOSPHATE(W)KINASE
           40  PPK
         1111  PHOSPHOTRANSFERASE
         9155  DIPHOSPHATE
        67811  KINASE
          198  DIPHOSPHATE(W)KINASE
        19527  AMP
        22854  ATP
          541  POLYPHOSPHATE
        39141  PHOSPHATE
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

159: Cancerlit_1975-2002/Oct
            0  S2
         4312  ADENYLATE
        61962  KINASE
          149  ADENYLATE(W)KINASE
           37  ADK
          232  POLYPHOSPHATE
        61962  KINASE
            1  POLYPHOSPHATE(W)KINASE
           21  PPK
          764  PHOSPHOTRANSFERASE
         4518  DIPHOSPHATE
        61962  KINASE
          277  DIPHOSPHATE(W)KINASE
        11808  ATP
          232  POLYPHOSPHATE
        15554  PHOSPHATE
        14528  AMP
            0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
               ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
               OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
               OR PHOSPHATE)

162: Global Health_1983-2009/Jul W3
            0  S2
          797  ADENYLATE
         9876  KINASE
           92  ADENYLATE(W)KINASE
           23  ADK
          228  POLYPHOSPHATE
```

```
          9876  KINASE
             8  POLYPHOSPHATE(W)KINASE
            16  PPK
           277  PHOSPHOTRANSFERASE
          1306  DIPHOSPHATE
          9876  KINASE
            27  DIPHOSPHATE(W)KINASE
          6415  AMP
          4912  ATP
           228  POLYPHOSPHATE
         14888  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

164: Allied & Complementary Medicine_1984-2009/Jul
             0  S2
             0  PPK
             1  POLYPHOSPHATE
           435  KINASE
             0  POLYPHOSPHATE(W)KINASE
            27  DIPHOSPHATE
           435  KINASE
             0  DIPHOSPHATE(W)KINASE
             9  ADENYLATE
           435  KINASE
             0  ADENYLATE(W)KINASE
             1  ADK
            41  AMP
           123  ATP
             1  POLYPHOSPHATE
           221  PHOSPHATE
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

172: EMBASE Alert_2009/Jul 21
             0  S2
           143  ADENYLATE
          7289  KINASE
            20  ADENYLATE(W)KINASE
             7  ADK
            42  POLYPHOSPHATE
          7289  KINASE
             3  POLYPHOSPHATE(W)KINASE
             6  PPK
            39  PHOSPHOTRANSFERASE
           274  DIPHOSPHATE
          7289  KINASE
            15  DIPHOSPHATE(W)KINASE
```

```
             569  AMP
            1787  ATP
              42  POLYPHOSPHATE
            2415  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

266: FEDRIP_2009/May
               0  S2
               3  ADENYLATE
             112  KINASE
               0  ADENYLATE(W)KINASE
               0  ADK
               1  PPK
               4  POLYPHOSPHATE
             112  KINASE
               0  POLYPHOSPHATE(W)KINASE
               5  DIPHOSPHATE
             112  KINASE
               0  DIPHOSPHATE(W)KINASE
              12  AMP
              72  ATP
               4  POLYPHOSPHATE
             110  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

369: New Scientist_1994-2009/Jul W2
               0  S2
               1  ADENYLATE
              47  KINASE
               1  ADENYLATE(W)KINASE
               0  ADK
               1  PPK
               2  POLYPHOSPHATE
              47  KINASE
               0  POLYPHOSPHATE(W)KINASE
               1  PHOSPHOTRANSFERASE
               9  DIPHOSPHATE
              47  KINASE
               0  DIPHOSPHATE(W)KINASE
              42  AMP
              81  ATP
               2  POLYPHOSPHATE
             181  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
```

```
                OR PHOSPHATE)

370: Science_1996-1999/Jul W3
             0  S2
            24  ADENYLATE
           681  KINASE
             3  ADENYLATE(W)KINASE
             1  ADK
             0  PPK
             7  POLYPHOSPHATE
           681  KINASE
             2  POLYPHOSPHATE(W)KINASE
            23  PHOSPHOTRANSFERASE
           116  DIPHOSPHATE
           681  KINASE
             0  DIPHOSPHATE(W)KINASE
           105  AMP
             7  POLYPHOSPHATE
           786  PHOSPHATE
           296  ATP
             0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

399: CA SEARCH(R)_1967-2009/UD=15104
           249  S2
         27328  ADENYLATE
        210467  KINASE
          1382  ADENYLATE(W)KINASE
           460  ADK
           152  PPK
         11112  POLYPHOSPHATE
        210467  KINASE
           196  POLYPHOSPHATE(W)KINASE
          3830  PHOSPHOTRANSFERASE
         13929  DIPHOSPHATE
        210467  KINASE
           809  DIPHOSPHATE(W)KINASE
         29196  AMP(ADENOSINE 5'-MONOPHOSPHATE)
         59309  ATP(ADENOSINE 5'-TRIPHOSPHATE)
         11112  POLYPHOSPHATE
        328993  PHOSPHATE
             1  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                OR PHOSPHATE)

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
             0  S2
         14639  ADENYLATE
         41267  KINASE
```

```
             468  ADENYLATE(W)KINASE
               8  ADK
               2  PPK
             826  POLYPHOSPHATE
           41267  KINASE
              12  POLYPHOSPHATE(W)KINASE
            1453  PHOSPHOTRANSFERASE
            2580  DIPHOSPHATE
           41267  KINASE
              60  DIPHOSPHATE(W)KINASE
           16708  AMP
           12484  ATP
             826  POLYPHOSPHATE
           35825  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

444: New England Journal of Med._1985-2009/Jul W2
               0  S2
             144  ADENYLATE
            1681  KINASE
               1  ADENYLATE(W)KINASE
               4  ADK
               1  PPK
               1  POLYPHOSPHATE
            1681  KINASE
               0  POLYPHOSPHATE(W)KINASE
              14  PHOSPHOTRANSFERASE
             190  DIPHOSPHATE
            1681  KINASE
               3  DIPHOSPHATE(W)KINASE
             323  AMP
             354  ATP
               1  POLYPHOSPHATE
            1276  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

457: The Lancet_1992-2009/Jul W2
               0  S2
               0  PPK
               3  POLYPHOSPHATE
            1214  KINASE
               0  POLYPHOSPHATE(W)KINASE
               5  PHOSPHOTRANSFERASE
              58  DIPHOSPHATE
            1214  KINASE
               0  DIPHOSPHATE(W)KINASE
```

```
              41  ADENYLATE
            1214  KINASE
               5  ADENYLATE(W)KINASE
               6  ADK
             125  AMP
             358  ATP
               3  POLYPHOSPHATE
             604  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

467: ExtraMED(tm)_2000/Dec
               0  S2
               9  ADENYLATE
              47  KINASE
               0  ADENYLATE(W)KINASE
               0  ADK
               1  PHOSPHOTRANSFERASE
               8  DIPHOSPHATE
              47  KINASE
               0  DIPHOSPHATE(W)KINASE
              18  AMP
              36  ATP
             113  PHOSPHATE
               0  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

TOTAL: FILES 5,34,35 and ...
             267  S2
          921345  ATP
          269730  ADENYLATE
         2705877  KINASE
           17163  ADENYLATE(W)KINASE
            2039  ADK
           36619  POLYPHOSPHATE
         2705877  KINASE
            1525  POLYPHOSPHATE(W)KINASE
            2247  PPK
           70514  PHOSPHOTRANSFERASE
          252752  DIPHOSPHATE
         2705877  KINASE
           11184  DIPHOSPHATE(W)KINASE
          702191  AMP
           36619  POLYPHOSPHATE
         1767826  PHOSPHATE
      S3       1  S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
```

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                  OR PHOSPHATE)

? t s3/3/all

3/3/1 (Item 1 from file: 399)
DIALOG(R)File 399: CA SEARCH(R)
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135119262        CA: 135(9)119262h         PATENT
In vitro ATP regeneration system from polyphosphate and AMP by polyphosphate
synthase and polyphosphate:AMP phosphotransferase or adenylate kinase
Inventor (Author): Ohtake, Hisao; Kuroda, Akio; Tanaka, Shotaro
Location: Japan,
Assignee: Satake Corporation
Patent: PCT International ; WO 200153513 A1      Date: 20010726
Application: WO 2001JP238 (20010117) *JP 20007332 (20000117) *JP 200028976
(20000207) *JP 2000112790 (20000414) *JP 2000119798 (20000420) *JP 2000362340
(20001129)
Pages: 51 pp.
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  Class:   C12P-019/32; C12Q-001/48; C12Q-001/66; C12Q-001/68
Designated Countries: CN; US
Designated Regional: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LU; MC; NL;
PT; SE; TR


? s s3 and fusion

  5: Biosis Previews(R)_1926-2009/Jul W2
               0  S3
          121382  FUSION
               0  S3 AND FUSION

 34: SciSearch(R) Cited Ref Sci_1990-2009/Jul W2
               0  S3
          156516  FUSION
               0  S3 AND FUSION

 35: Dissertation Abs Online_1861-2009/Jun
               0  S3
           12704  FUSION
               0  S3 AND FUSION

 45: EMCare_2009/Jul W2
               0  S3
           10849  FUSION
               0  S3 AND FUSION

 65: Inside Conferences_1993-2009/Jul 21
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            0  S3
        37126  FUSION
            0  S3 AND FUSION

 71: ELSEVIER BIOBASE_1994-2009/Jul W3
            0  S3
        51549  FUSION
            0  S3 AND FUSION

 72: EMBASE_1993-2009/Jul 20
            0  S3
        74919  FUSION
            0  S3 AND FUSION

 73: EMBASE_1974-2009/Jul 20
            0  S3
        97861  FUSION
            0  S3 AND FUSION

 91: MANTIS(TM)_1880-2009/Mar
            0  S3
         4898  FUSION
            0  S3 AND FUSION

 98: General Sci Abs_1984-2009/Jul
            0  S3
         6224  FUSION
            0  S3 AND FUSION

135: NewsRx Weekly Reports_1995-2009/Jul W1
            0  S3
        15864  FUSION
            0  S3 AND FUSION

138: Physical Education Index_1990-2009/Jul
            0  S3
          105  FUSION
            0  S3 AND FUSION

144: Pascal_1973-2009/Jul W3
            0  S3
       136596  FUSION
            0  S3 AND FUSION

149: TGG Health&Wellness DB(SM)_1976-2009/Jun W3
            0  S3
         8656  FUSION
            0  S3 AND FUSION

154: MEDLINE(R)_1990-2009/Jul 20
            0  S3
       145114  FUSION
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              0  S3 AND FUSION

155: MEDLINE(R)_1950-2009/Jul 20
              0  S3
         168402  FUSION
              0  S3 AND FUSION

156: ToxFile_1965-2009/Jul W3
              0  S3
          28232  FUSION
              0  S3 AND FUSION

159: Cancerlit_1975-2002/Oct
              0  S3
          29715  FUSION
              0  S3 AND FUSION

162: Global Health_1983-2009/Jul W3
              0  S3
           5133  FUSION
              0  S3 AND FUSION

164: Allied & Complementary Medicine_1984-2009/Jul
              0  S3
            675  FUSION
              0  S3 AND FUSION

172: EMBASE Alert_2009/Jul 21
              0  S3
           2271  FUSION
              0  S3 AND FUSION

266: FEDRIP_2009/May
              0  S3
            227  FUSION
              0  S3 AND FUSION

369: New Scientist_1994-2009/Jul W2
              0  S3
            485  FUSION
              0  S3 AND FUSION

370: Science_1996-1999/Jul W3
              0  S3
            620  FUSION
              0  S3 AND FUSION

399: CA SEARCH(R)_1967-2009/UD=15104
              1  S3
         186395  FUSION(SEE ?IGNOTE)
              0  S3 AND FUSION
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434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
               0  S3
           22031  FUSION
               0  S3 AND FUSION

444: New England Journal of Med._1985-2009/Jul W2
               0  S3
             572  FUSION
               0  S3 AND FUSION

457: The Lancet_1992-2009/Jul W2
               0  S3
             601  FUSION
               0  S3 AND FUSION

467: ExtraMED(tm)_2000/Dec
               0  S3
              66  FUSION
               0  S3 AND FUSION

TOTAL: FILES 5,34,35 and ...
               1  S3
         1325788  FUSION
      S4       0  S3 AND FUSION

>>> Retrying request [1]
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Set   File    Items   Description
         5        0
        34        0
        35        0
        45        0
        65        0
        71        0
        72        0
        73        0
        91        0
        98       16
       135        0
       138        0
       144        0
       149        2
       154        0
       155        0
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       159        0
       162        0
       164        0
       172        0
       266        0
       369        0
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	370	0	
	399	283	
	434	0	
	444	0	
	457	0	
	467	0	
S1		301	AU='KURODA, AKIO'
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	71	0	
	72	0	
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	138	0	
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	149	2	
	154	0	
	155	0	
	156	0	
	159	0	
	162	0	
	164	0	
	172	0	
	266	0	
	369	0	
	370	0	
	399	249	
	434	0	
	444	0	
	457	0	
	467	0	
S2		267	RD (unique items)
	5	0	
	34	0	
	35	0	
	45	0	
	65	0	
	71	0	
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	73	0	
	91	0	
	98	0	
	135	0	
	138	0	
	144	0	
	149	0	
	154	0	

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      155         0
      156         0
      159         0
      162         0
      164         0
      172         0
      266         0
      369         0
      370         0
      399         1
      434         0
      444         0
      457         0
      467         0
S3                1   S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND (-
                  (POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE -
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE -
                  OR PHOSPHATE)
        5         0
       34         0
       35         0
       45         0
       65         0
       71         0
       72         0
       73         0
       91         0
       98         0
      135         0
      138         0
      144         0
      149         0
      154         0
      155         0
      156         0
      159         0
      162         0
      164         0
      172         0
      266         0
      369         0
      370         0
      399         0
      434         0
      444         0
      457         0
      467         0
S4                0   S3 AND FUSION

? s ATP and ((adenylate (w) kinase) or adk) and ((polyphosphate (w) kinase) or ppk
or phosphotransferase or (diphosphate (w) kinase)) and amp and (polyphosphate or
phosphate)
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Processing
Processing
Processing
  5: Biosis Previews(R)_1926-2009/Jul W2
           39298  ADENYLATE
          380469  KINASE
            3058  ADENYLATE(W)KINASE
             228  ADK
            4025  POLYPHOSPHATE
          380469  KINASE
             221  POLYPHOSPHATE(W)KINASE
             318  PPK
            7850  PHOSPHOTRANSFERASE
           18794  DIPHOSPHATE
          380469  KINASE
            1151  DIPHOSPHATE(W)KINASE
          130447  AMP
            4025  POLYPHOSPHATE
          264491  PHOSPHATE
          172759  ATP
              25  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

 34: SciSearch(R) Cited Ref Sci_1990-2009/Jul W2
           41779  ADENYLATE
          397901  KINASE
            1716  ADENYLATE(W)KINASE
             206  ADK
            4330  POLYPHOSPHATE
          397901  KINASE
             172  POLYPHOSPHATE(W)KINASE
             299  PPK
            5419  PHOSPHOTRANSFERASE
           15412  DIPHOSPHATE
          397901  KINASE
            2026  DIPHOSPHATE(W)KINASE
           45117  AMP
          116834  ATP
            4330  POLYPHOSPHATE
          183485  PHOSPHATE
              23  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

 35: Dissertation Abs Online_1861-2009/Jun
            1364  ADENYLATE
           15594  KINASE
             121  ADENYLATE(W)KINASE
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          39  ADK
         311  POLYPHOSPHATE
       15594  KINASE
          18  POLYPHOSPHATE(W)KINASE
          25  PPK
         434  PHOSPHOTRANSFERASE
         799  DIPHOSPHATE
       15594  KINASE
          64  DIPHOSPHATE(W)KINASE
        7606  ATP
         311  POLYPHOSPHATE
       11923  PHOSPHATE
       23552  AMP
           1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
              ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
              OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
              OR PHOSPHATE)

45: EMCare_2009/Jul W2
         966  ADENYLATE
       21081  KINASE
         109  ADENYLATE(W)KINASE
           6  ADK
         122  POLYPHOSPHATE
       21081  KINASE
           2  POLYPHOSPHATE(W)KINASE
          13  PPK
        2861  PHOSPHOTRANSFERASE
        2883  DIPHOSPHATE
       21081  KINASE
          34  DIPHOSPHATE(W)KINASE
        3403  AMP
        4350  ATP
         122  POLYPHOSPHATE
       20018  PHOSPHATE
           1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
              ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
              OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
              OR PHOSPHATE)

65: Inside Conferences_1993-2009/Jul 21
         399  ADENYLATE
        7066  KINASE
          17  ADENYLATE(W)KINASE
          10  ADK
           5  PPK
         172  POLYPHOSPHATE
        7066  KINASE
           2  POLYPHOSPHATE(W)KINASE
          55  PHOSPHOTRANSFERASE
         194  DIPHOSPHATE
        7066  KINASE
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          23  DIPHOSPHATE(W)KINASE
        1874  ATP
         172  POLYPHOSPHATE
        6198  PHOSPHATE
       30755  AMP
           0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
              ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
              OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
              OR PHOSPHATE)

71: ELSEVIER BIOBASE_1994-2009/Jul W3
        6473  ADENYLATE
      153538  KINASE
         562  ADENYLATE(W)KINASE
         103  ADK
        1411  POLYPHOSPHATE
      153538  KINASE
         104  POLYPHOSPHATE(W)KINASE
         149  PPK
        2455  PHOSPHOTRANSFERASE
        5611  DIPHOSPHATE
      153538  KINASE
         526  DIPHOSPHATE(W)KINASE
       14712  AMP
        1411  POLYPHOSPHATE
       61784  PHOSPHATE
       49656  ATP
           9  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
              ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
              OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
              OR PHOSPHATE)

72: EMBASE_1993-2009/Jul 20
       17023  ADENYLATE
      264222  KINASE
        1539  ADENYLATE(W)KINASE
         125  ADK
        1907  POLYPHOSPHATE
      264222  KINASE
         124  POLYPHOSPHATE(W)KINASE
         215  PPK
       13547  PHOSPHOTRANSFERASE
       33339  DIPHOSPHATE
      264222  KINASE
        1056  DIPHOSPHATE(W)KINASE
       56453  AMP
       67348  ATP
        1907  POLYPHOSPHATE
      131116  PHOSPHATE
          26  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
              ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
              OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
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                 OR PHOSPHATE)

73: EMBASE_1974-2009/Jul 20
          35708  ADENYLATE
         309524  KINASE
           2576  ADENYLATE(W)KINASE
            169  ADK
           3017  POLYPHOSPHATE
         309524  KINASE
            150  POLYPHOSPHATE(W)KINASE
            249  PPK
          16431  PHOSPHOTRANSFERASE
          51182  DIPHOSPHATE
         309524  KINASE
           1261  DIPHOSPHATE(W)KINASE
         100812  ATP
         101248  AMP
           3017  POLYPHOSPHATE
         211034  PHOSPHATE
             31  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

91: MANTIS(TM)_1880-2009/Mar
             52  ADENYLATE
           1339  KINASE
              4  ADENYLATE(W)KINASE
              1  ADK
              7  POLYPHOSPHATE
           1339  KINASE
              0  POLYPHOSPHATE(W)KINASE
              2  PHOSPHOTRANSFERASE
              1  PPK
            191  DIPHOSPHATE
           1339  KINASE
              1  DIPHOSPHATE(W)KINASE
            173  AMP
            590  ATP
              7  POLYPHOSPHATE
           1028  PHOSPHATE
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

98: General Sci Abs_1984-2009/Jul
            972  ADENYLATE
          16238  KINASE
            109  ADENYLATE(W)KINASE
             13  ADK
            193  POLYPHOSPHATE
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          16238  KINASE
             34  POLYPHOSPHATE(W)KINASE
             20  PPK
            490  PHOSPHOTRANSFERASE
           1087  DIPHOSPHATE
          16238  KINASE
             62  DIPHOSPHATE(W)KINASE
           1891  AMP
            193  POLYPHOSPHATE
           7958  PHOSPHATE
           6757  ATP
              1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

135: NewsRx Weekly Reports_1995-2009/Jul W1
           1021  ADENYLATE
          53899  KINASE
            129  ADENYLATE(W)KINASE
             44  ADK
            168  POLYPHOSPHATE
          53899  KINASE
             15  POLYPHOSPHATE(W)KINASE
             34  PPK
            321  PHOSPHOTRANSFERASE
           1392  DIPHOSPHATE
          53899  KINASE
             88  DIPHOSPHATE(W)KINASE
           3907  AMP
            168  POLYPHOSPHATE
          12485  PHOSPHATE
          11184  ATP
              1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

138: Physical Education Index_1990-2009/Jul
              0  POLYPHOSPHATE
            727  KINASE
              0  POLYPHOSPHATE(W)KINASE
             11  DIPHOSPHATE
            727  KINASE
              0  DIPHOSPHATE(W)KINASE
              3  ADENYLATE
            727  KINASE
              1  ADENYLATE(W)KINASE
              0  ADK
            146  AMP
            173  PHOSPHATE
            307  ATP
```

```
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

144: Pascal_1973-2009/Jul W3
          15117  ADENYLATE
         111316  KINASE
            906  ADENYLATE(W)KINASE
            115  ADK
           3481  POLYPHOSPHATE
         111316  KINASE
             95  POLYPHOSPHATE(W)KINASE
            157  PPK
           2905  PHOSPHOTRANSFERASE
          10921  DIPHOSPHATE
         111316  KINASE
            359  DIPHOSPHATE(W)KINASE
          38354  AMP
          57665  ATP
           3481  POLYPHOSPHATE
         128357  PHOSPHATE
             10  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

149: TGG Health&Wellness DB(SM)_1976-2009/Jun W3
            800  ADENYLATE
          16523  KINASE
             69  ADENYLATE(W)KINASE
             38  ADK
             82  POLYPHOSPHATE
          16523  KINASE
              8  POLYPHOSPHATE(W)KINASE
             17  PPK
            241  PHOSPHOTRANSFERASE
           1086  DIPHOSPHATE
          16523  KINASE
             32  DIPHOSPHATE(W)KINASE
           2487  AMP
           4879  ATP
             82  POLYPHOSPHATE
          11510  PHOSPHATE
              1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

154: MEDLINE(R)_1990-2009/Jul 20
          18484  ADENYLATE
         256263  KINASE
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           1289  ADENYLATE(W)KINASE
            161  ADK
           1821  POLYPHOSPHATE
         256263  KINASE
            154  POLYPHOSPHATE(W)KINASE
            238  PPK
           3804  PHOSPHOTRANSFERASE
          28168  DIPHOSPHATE
         256263  KINASE
           1458  DIPHOSPHATE(W)KINASE
          59401  AMP
          85398  ATP
           1821  POLYPHOSPHATE
         106233  PHOSPHATE
             18  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

155: MEDLINE(R)_1950-2009/Jul 20
          35980  ADENYLATE
         297288  KINASE
           2545  ADENYLATE(W)KINASE
            200  ADK
           2573  POLYPHOSPHATE
         297288  KINASE
            171  POLYPHOSPHATE(W)KINASE
            267  PPK
           6181  PHOSPHOTRANSFERASE
          49507  DIPHOSPHATE
         297288  KINASE
           1654  DIPHOSPHATE(W)KINASE
         102536  AMP
         118852  ATP
           2573  POLYPHOSPHATE
         169926  PHOSPHATE
             25  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

156: ToxFile_1965-2009/Jul W3
           6841  ADENYLATE
          67811  KINASE
            292  ADENYLATE(W)KINASE
             34  ADK
            541  POLYPHOSPHATE
          67811  KINASE
             33  POLYPHOSPHATE(W)KINASE
             40  PPK
           1111  PHOSPHOTRANSFERASE
           9155  DIPHOSPHATE
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          67811  KINASE
            198  DIPHOSPHATE(W)KINASE
          19527  AMP
          22854  ATP
            541  POLYPHOSPHATE
          39141  PHOSPHATE
              2  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

159: Cancerlit_1975-2002/Oct
           4312  ADENYLATE
          61962  KINASE
            149  ADENYLATE(W)KINASE
             37  ADK
            232  POLYPHOSPHATE
          61962  KINASE
              1  POLYPHOSPHATE(W)KINASE
             21  PPK
            764  PHOSPHOTRANSFERASE
           4518  DIPHOSPHATE
          61962  KINASE
            277  DIPHOSPHATE(W)KINASE
          11808  ATP
            232  POLYPHOSPHATE
          15554  PHOSPHATE
          14528  AMP
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

162: Global Health_1983-2009/Jul W3
            797  ADENYLATE
           9876  KINASE
             92  ADENYLATE(W)KINASE
             23  ADK
            228  POLYPHOSPHATE
           9876  KINASE
              8  POLYPHOSPHATE(W)KINASE
             16  PPK
            277  PHOSPHOTRANSFERASE
           1306  DIPHOSPHATE
           9876  KINASE
             27  DIPHOSPHATE(W)KINASE
           6415  AMP
           4912  ATP
            228  POLYPHOSPHATE
          14888  PHOSPHATE
              1  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
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                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

164: Allied & Complementary Medicine_1984-2009/Jul
                0  PPK
                1  POLYPHOSPHATE
              435  KINASE
                0  POLYPHOSPHATE(W)KINASE
               27  DIPHOSPHATE
              435  KINASE
                0  DIPHOSPHATE(W)KINASE
                9  ADENYLATE
              435  KINASE
                0  ADENYLATE(W)KINASE
                1  ADK
               41  AMP
              123  ATP
                1  POLYPHOSPHATE
              221  PHOSPHATE
                0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                   ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                   OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                   OR PHOSPHATE)

172: EMBASE Alert_2009/Jul 21
              143  ADENYLATE
             7289  KINASE
               20  ADENYLATE(W)KINASE
                7  ADK
               42  POLYPHOSPHATE
             7289  KINASE
                3  POLYPHOSPHATE(W)KINASE
                6  PPK
               39  PHOSPHOTRANSFERASE
              274  DIPHOSPHATE
             7289  KINASE
               15  DIPHOSPHATE(W)KINASE
              569  AMP
             1787  ATP
               42  POLYPHOSPHATE
             2415  PHOSPHATE
                0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                   ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                   OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                   OR PHOSPHATE)

266: FEDRIP_2009/May
                3  ADENYLATE
              112  KINASE
                0  ADENYLATE(W)KINASE
                0  ADK
                1  PPK
```

```
                4   POLYPHOSPHATE
              112   KINASE
                0   POLYPHOSPHATE(W)KINASE
                5   DIPHOSPHATE
              112   KINASE
                0   DIPHOSPHATE(W)KINASE
               12   AMP
               72   ATP
                4   POLYPHOSPHATE
              110   PHOSPHATE
                0   ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                    ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                    OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                    OR PHOSPHATE)

369: New Scientist_1994-2009/Jul W2
                1   ADENYLATE
               47   KINASE
                1   ADENYLATE(W)KINASE
                0   ADK
                1   PPK
                2   POLYPHOSPHATE
               47   KINASE
                0   POLYPHOSPHATE(W)KINASE
                1   PHOSPHOTRANSFERASE
                9   DIPHOSPHATE
               47   KINASE
                0   DIPHOSPHATE(W)KINASE
               42   AMP
               81   ATP
                2   POLYPHOSPHATE
              181   PHOSPHATE
                0   ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                    ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                    OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                    OR PHOSPHATE)

370: Science_1996-1999/Jul W3
               24   ADENYLATE
              681   KINASE
                3   ADENYLATE(W)KINASE
                1   ADK
                0   PPK
                7   POLYPHOSPHATE
              681   KINASE
                2   POLYPHOSPHATE(W)KINASE
               23   PHOSPHOTRANSFERASE
              116   DIPHOSPHATE
              681   KINASE
                0   DIPHOSPHATE(W)KINASE
              105   AMP
                7   POLYPHOSPHATE
```

```
              786  PHOSPHATE
              296  ATP
                0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                   ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                   OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                   OR PHOSPHATE)

399: CA SEARCH(R)_1967-2009/UD=15104
            27328  ADENYLATE
           210467  KINASE
             1382  ADENYLATE(W)KINASE
              460  ADK
              152  PPK
            11112  POLYPHOSPHATE
           210467  KINASE
              196  POLYPHOSPHATE(W)KINASE
             3830  PHOSPHOTRANSFERASE
            13929  DIPHOSPHATE
           210467  KINASE
              809  DIPHOSPHATE(W)KINASE
            29196  AMP(ADENOSINE 5'-MONOPHOSPHATE)
            59309  ATP(ADENOSINE 5'-TRIPHOSPHATE)
            11112  POLYPHOSPHATE
           328993  PHOSPHATE
                9  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                   ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                   OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                   OR PHOSPHATE)

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
            14639  ADENYLATE
            41267  KINASE
              468  ADENYLATE(W)KINASE
                8  ADK
                2  PPK
              826  POLYPHOSPHATE
            41267  KINASE
               12  POLYPHOSPHATE(W)KINASE
             1453  PHOSPHOTRANSFERASE
             2580  DIPHOSPHATE
            41267  KINASE
               60  DIPHOSPHATE(W)KINASE
            16708  AMP
            12484  ATP
              826  POLYPHOSPHATE
            35825  PHOSPHATE
                0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                   ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                   OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                   OR PHOSPHATE)

444: New England Journal of Med._1985-2009/Jul W2
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```
            144  ADENYLATE
           1681  KINASE
              1  ADENYLATE(W)KINASE
              4  ADK
              1  PPK
              1  POLYPHOSPHATE
           1681  KINASE
              0  POLYPHOSPHATE(W)KINASE
             14  PHOSPHOTRANSFERASE
            190  DIPHOSPHATE
           1681  KINASE
              3  DIPHOSPHATE(W)KINASE
            323  AMP
            354  ATP
              1  POLYPHOSPHATE
           1276  PHOSPHATE
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

457: The Lancet_1992-2009/Jul W2
              0  PPK
              3  POLYPHOSPHATE
           1214  KINASE
              0  POLYPHOSPHATE(W)KINASE
              5  PHOSPHOTRANSFERASE
             58  DIPHOSPHATE
           1214  KINASE
              0  DIPHOSPHATE(W)KINASE
             41  ADENYLATE
           1214  KINASE
              5  ADENYLATE(W)KINASE
              6  ADK
            125  AMP
            358  ATP
              3  POLYPHOSPHATE
            604  PHOSPHATE
              0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                 ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                 OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                 OR PHOSPHATE)

467: ExtraMED(tm)_2000/Dec
              9  ADENYLATE
             47  KINASE
              0  ADENYLATE(W)KINASE
              0  ADK
              1  PHOSPHOTRANSFERASE
              8  DIPHOSPHATE
             47  KINASE
              0  DIPHOSPHATE(W)KINASE
```

```
              18  AMP
              36  ATP
             113  PHOSPHATE
               0  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

TOTAL: FILES 5,34,35 and ...
          921345  ATP
          269730  ADENYLATE
         2705877  KINASE
           17163  ADENYLATE(W)KINASE
            2039  ADK
           36619  POLYPHOSPHATE
         2705877  KINASE
            1525  POLYPHOSPHATE(W)KINASE
            2247  PPK
           70514  PHOSPHOTRANSFERASE
          252752  DIPHOSPHATE
         2705877  KINASE
           11184  DIPHOSPHATE(W)KINASE
          702191  AMP
           36619  POLYPHOSPHATE
         1767826  PHOSPHATE
      S5     184  ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND
                  ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE
                  OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE
                  OR PHOSPHATE)

? s s5 and (fusion (w) protein)

Processing
Processing
Processing
Processing
Processing
  5: Biosis Previews(R)_1926-2009/Jul W2
              25  S5
          121382  FUSION
         1976373  PROTEIN
           29157  FUSION(W)PROTEIN
               2  S5 AND (FUSION (W) PROTEIN)

 34: SciSearch(R) Cited Ref Sci_1990-2009/Jul W2
              23  S5
          156516  FUSION
         1703496  PROTEIN
           26295  FUSION(W)PROTEIN
               3  S5 AND (FUSION (W) PROTEIN)

 35: Dissertation Abs Online_1861-2009/Jun
```

```
              1  S5
          12704  FUSION
          95405  PROTEIN
           1949  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

45: EMCare_2009/Jul W2
              1  S5
          10849  FUSION
         149653  PROTEIN
            559  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

65: Inside Conferences_1993-2009/Jul 21
              0  S5
          37126  FUSION
          44356  PROTEIN
            240  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

71: ELSEVIER BIOBASE_1994-2009/Jul W3
              9  S5
          51549  FUSION
         827723  PROTEIN
          15471  FUSION(W)PROTEIN
              2  S5 AND (FUSION (W) PROTEIN)

72: EMBASE_1993-2009/Jul 20
             26  S5
          74919  FUSION
        1583718  PROTEIN
          17903  FUSION(W)PROTEIN
              2  S5 AND (FUSION (W) PROTEIN)

73: EMBASE_1974-2009/Jul 20
             31  S5
          97861  FUSION
        1935703  PROTEIN
          20106  FUSION(W)PROTEIN
              2  S5 AND (FUSION (W) PROTEIN)

91: MANTIS(TM)_1880-2009/Mar
              0  S5
           4898  FUSION
           9626  PROTEIN
             39  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

98: General Sci Abs_1984-2009/Jul
              1  S5
           6224  FUSION
          89885  PROTEIN
```

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           1015  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

135: NewsRx Weekly Reports_1995-2009/Jul W1
              1  S5
          15864  FUSION
         204000  PROTEIN
           4502  FUSION(W)PROTEIN
              1  S5 AND (FUSION (W) PROTEIN)

138: Physical Education Index_1990-2009/Jul
              0  S5
            105  FUSION
           2339  PROTEIN
              0  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

144: Pascal_1973-2009/Jul W3
             10  S5
         136596  FUSION
         677374  PROTEIN
           9102  FUSION(W)PROTEIN
              2  S5 AND (FUSION (W) PROTEIN)

149: TGG Health&Wellness DB(SM)_1976-2009/Jun W3
              1  S5
           8656  FUSION
         101263  PROTEIN
           1612  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

154: MEDLINE(R)_1990-2009/Jul 20
             18  S5
         145114  FUSION
        1588386  PROTEIN
          25189  FUSION(W)PROTEIN
              2  S5 AND (FUSION (W) PROTEIN)

155: MEDLINE(R)_1950-2009/Jul 20
             25  S5
         168402  FUSION
        1951071  PROTEIN
          26335  FUSION(W)PROTEIN
              2  S5 AND (FUSION (W) PROTEIN)

156: ToxFile_1965-2009/Jul W3
              2  S5
          28232  FUSION
         350736  PROTEIN
           4645  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)
```

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159: Cancerlit_1975-2002/Oct
              0  S5
          29715  FUSION
         292642  PROTEIN
           5385  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

162: Global Health_1983-2009/Jul W3
              1  S5
           5133  FUSION
         140555  PROTEIN
           1691  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

164: Allied & Complementary Medicine_1984-2009/Jul
              0  S5
            675  FUSION
           1528  PROTEIN
              4  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

172: EMBASE Alert_2009/Jul 21
              0  S5
           2271  FUSION
          30975  PROTEIN
            435  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

266: FEDRIP_2009/May
              0  S5
            227  FUSION
           1340  PROTEIN
             13  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

369: New Scientist_1994-2009/Jul W2
              0  S5
            485  FUSION
           2540  PROTEIN
              3  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

370: Science_1996-1999/Jul W3
              0  S5
            620  FUSION
           2329  PROTEIN
            241  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

399: CA SEARCH(R)_1967-2009/UD=15104
              9  S5
         186395  FUSION(SEE ?IGNOTE)
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        1554652  PROTEIN
          17456  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

434: SciSearch(R) Cited Ref Sci_1974-1989/Dec
              0  S5
          22031  FUSION
         213976  PROTEIN
            462  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

444: New England Journal of Med._1985-2009/Jul W2
              0  S5
            572  FUSION
           6040  PROTEIN
            146  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

457: The Lancet_1992-2009/Jul W2
              0  S5
            601  FUSION
           5598  PROTEIN
            154  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

467: ExtraMED(tm)_2000/Dec
              0  S5
             66  FUSION
            670  PROTEIN
              3  FUSION(W)PROTEIN
              0  S5 AND (FUSION (W) PROTEIN)

TOTAL: FILES 5,34,35 and ...
            184  S5
        1325788  FUSION
       15543952  PROTEIN
         210112  FUSION(W)PROTEIN
      S6     18  S5 AND (FUSION (W) PROTEIN)

? ds

Set   File    Items   Description
         5        0
        34        0
        35        0
        45        0
        65        0
        71        0
        72        0
        73        0
        91        0
        98       16
```

```
      135          0
      138          0
      144          0
      149          2
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399        283
      434          0
      444          0
      457          0
      467          0
S1               301   AU='KURODA, AKIO'
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98         16
      135          0
      138          0
      144          0
      149          2
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399        249
      434          0
      444          0
      457          0
      467          0
S2               267   RD  (unique items)
        5          0
       34          0
```

35	0	
45	0	
65	0	
71	0	
72	0	
73	0	
91	0	
98	0	
135	0	
138	0	
144	0	
149	0	
154	0	
155	0	
156	0	
159	0	
162	0	
164	0	
172	0	
266	0	
369	0	
370	0	
399	1	
434	0	
444	0	
457	0	
467	0	
S3	1	S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND (- (POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE - OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE - OR PHOSPHATE)
5	0	
34	0	
35	0	
45	0	
65	0	
71	0	
72	0	
73	0	
91	0	
98	0	
135	0	
138	0	
144	0	
149	0	
154	0	
155	0	
156	0	
159	0	
162	0	
164	0	
172	0	

```
      266          0
      369          0
      370          0
      399          0
      434          0
      444          0
      457          0
      467          0
S4                 0   S3 AND FUSION
        5         25
       34         23
       35          1
       45          1
       65          0
       71          9
       72         26
       73         31
       91          0
       98          1
      135          1
      138          0
      144         10
      149          1
      154         18
      155         25
      156          2
      159          0
      162          1
      164          0
      172          0
      266          0
      369          0
      370          0
      399          9
      434          0
      444          0
      457          0
      467          0
S5               184   ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND ((POLYPH-
                     OSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE OR (DIP-
                     HOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE OR PHOS-
                     PHATE)
        5          2
       34          3
       35          0
       45          0
       65          0
       71          2
       72          2
       73          2
       91          0
       98          0
```

```
      135          1
      138          0
      144          2
      149          0
      154          2
      155          2
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399          0
      434          0
      444          0
      457          0
      467          0
S6                18   S5 AND (FUSION (W) PROTEIN)

? ds

Set   File     Items   Description
         5         0
        34         0
        35         0
        45         0
        65         0
        71         0
        72         0
        73         0
        91         0
        98        16
       135         0
       138         0
       144         0
       149         2
       154         0
       155         0
       156         0
       159         0
       162         0
       164         0
       172         0
       266         0
       369         0
       370         0
       399       283
       434         0
       444         0
       457         0
```

467	0	
S1	301	AU='KURODA, AKIO'
5	0	
34	0	
35	0	
45	0	
65	0	
71	0	
72	0	
73	0	
91	0	
98	16	
135	0	
138	0	
144	0	
149	2	
154	0	
155	0	
156	0	
159	0	
162	0	
164	0	
172	0	
266	0	
369	0	
370	0	
399	249	
434	0	
444	0	
457	0	
467	0	
S2	267	RD (unique items)
5	0	
34	0	
35	0	
45	0	
65	0	
71	0	
72	0	
73	0	
91	0	
98	0	
135	0	
138	0	
144	0	
149	0	
154	0	
155	0	
156	0	
159	0	
162	0	
164	0	

```
      172          0
      266          0
      369          0
      370          0
      399          1
      434          0
      444          0
      457          0
      467          0
S3                 1   S2 AND ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND (-
                   (POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE -
                   OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE -
                   OR PHOSPHATE)
        5          0
       34          0
       35          0
       45          0
       65          0
       71          0
       72          0
       73          0
       91          0
       98          0
      135          0
      138          0
      144          0
      149          0
      154          0
      155          0
      156          0
      159          0
      162          0
      164          0
      172          0
      266          0
      369          0
      370          0
      399          0
      434          0
      444          0
      457          0
      467          0
S4                 0   S3 AND FUSION
        5         25
       34         23
       35          1
       45          1
       65          0
       71          9
       72         26
       73         31
       91          0
```

	98	1
	135	1
	138	0
	144	10
	149	1
	154	18
	155	25
	156	2
	159	0
	162	1
	164	0
	172	0
	266	0
	369	0
	370	0
	399	9
	434	0
	444	0
	457	0
	467	0
S5		184 ATP AND ((ADENYLATE (W) KINASE) OR ADK) AND ((POLYPHOSPHATE (W) KINASE) OR PPK OR PHOSPHOTRANSFERASE OR (DIPHOSPHATE (W) KINASE)) AND AMP AND (POLYPHOSPHATE OR PHOSPHATE)
	5	2
	34	3
	35	0
	45	0
	65	0
	71	2
	72	2
	73	2
	91	0
	98	0
	135	1
	138	0
	144	2
	149	0
	154	2
	155	2
	156	0
	159	0
	162	0
	164	0
	172	0
	266	0
	369	0
	370	0
	399	0
	434	0
	444	0
	457	0

```
      467        0
S6               18   S5 AND (FUSION (W) PROTEIN)

? rd

      S7       5  RD  (unique items)

? t s7/k/all
```

>>> KWIC option is not available in file(s): 3997/K/1 (Item 1 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)

ATP amplification for ultrasensitive bioluminescence assay: Detection of a single bacterial cell

Abstract: We developed an ultrasensitive bioluminescence assay of ATP by employing (i) adenylate kinase (ADK) for converting AMP + ATP to two molecules of ADP, (ii) polyphosphate (polyP) kinase (PPK) for converting ADP back to ATP (ATP amplification), and (iii) a commercially available firefly luciferase. A highly purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels of bioluminescence in the firefly luciferase reaction. The present method, which was approximately 10,000-fold more sensitive to ATP than the conventional bioluminescence assay, allowed us to detect bacterial contamination as low as one colony-forming unit (CFU) of Escherichia coli per assay.
Registry Numbers: ...AMP; ... ...AMP; ... ...AMP; ... ...AMP; ... ...AMP; ... ... AMP; ... ...AMP; ... ...AMP; ... ...ATP; ... ...ATP; ... ...ATP; ... ...ATP
Enzyme Commission Number:
DESCRIPTORS:
 Chemicals & Biochemicals: ...AMP; ATP--... ...polyphosphate;

7/K/2 (Item 2 from file: 5)
DIALOG(R)File 5: Biosis Previews(R)

Nucleoside diphosphate kinase-like activity in adenylate kinase of Mycobacterium tuberculosis.

Abstract: Ak (adenylate kinase) is a ubiquitous enzyme that catalyses a reversible high-energy phosphoryl-transfer reaction between ATP and AMP to form ADP. In the present study, the Ak gene (adk) of Mycobacterium tuberculosis was cloned, expressed in Escherichia coli and purified as a glutathione S-transferase fusion protein. Purified Ak converted AMP into ADP in the presence of (gamma-32P) ATP or (gamma-32P) GTP. Replacement of arginine-88 of adk with glycine resulted in the loss of enzymic activity. The purified protein also showed Ndk (nucleoside diphosphate kinase)-like activity as it transferred terminal phosphate from (gamma-32P)ATP to all nucleoside diphosphates, converting them into corresponding triphosphates. However, Ndk-like activity of Ak was not observed with (gamma-32P)GTP. Immunoblot analysis of various cellular fractions of M. tuberculosis H37Rv revealed that Ak is a cytoplasmic

protein. The dual activity of Ak as both nucleoside mono- and di-phosphate kinases suggested that this enzyme may have a role in RNA and DNA biosynthesis in addition to its role in intracellular nucleotide metabolism.
Registry Numbers: ...AMP; ... ...AMP; ... ...AMP; ... ...AMP; ... ...AMP; ... ... AMP; ... ...AMP; ... ...AMP; ... ...ATP; ... ...ATP; ... ...ATP; ... ...ATP; ... ... adenylate kinase; ... ...nucleoside diphosphate kinase
Enzyme Commission Number: ...adenylate kinase; ... ...nucleoside diphosphate kinase
DESCRIPTORS:
Chemicals & Biochemicals: ...AMP; ATP; ... ...adenylate kinase--... ...nucleoside diphosphate kinase--
Gene Name: Mycobacterium tuberculosis adk gene (Mycobacteriaceae)
Methods & Equipment:

7/K/3 (Item 1 from file: 34)
DIALOG(R)File 34: SciSearch(R) Cited Ref Sci

Identification of a novel human adenylate kinase - cDNA cloning, expression analysis, chromosome localization and characterization of the recombinant protein

Abstract: ...the human adenylate kinases and to UMP/CMP kinase of several species. The enzyme was expressed in Escherichia coli and shown to catalyse phosphorylation of AMP and dAMP with ATP as phosphate donor. When GTP was used as phosphate donor, the enzyme phosphorylated AMP, CMP, and to a small extent dCMP. Expression as a fusion protein with the green fluorescent protein showed that the enzyme is located in the cytosol. Northern blot analysis with mRNA from eight different human tissues demonstrated... ...to chromosome 1p31. Based on the substrate specificity and the sequence similarity with the previously identified human adenylate kinases, we have named this novel enzyme adenylate kinase 5.
Identifiers-- ...GTP-AMP PHOSPHOTRANSFERASE; RADIATION HYBRID MAP; HUMAN GENOME; BEEF-HEART; GENE; FAMILY; BRAIN; LOCI; DEFICIENCY; YEAST

7/K/4 (Item 1 from file: 72)
DIALOG(R)File 72: EMBASE

Adenylate kinase as a virulence factor of pseudomonas aeruginosa

Adenylate kinase (AK; ATP:AMP phosphotransferase, EC 2.7.4.3) is a ubiquitous enzyme that contributes to the homeostasis of adenine nucleotides in eukaryotic and prokaryotic cells. AK catalyzes the reversible reaction Mg . ATP + AMP (left right arrow) Mg . ADP + ADP. In this study we show that AK secreted by the pathogenic strains of Pseudomonas aeruginosa appears to play an... ...death. We purified and characterized AK from the growth medium of a cystic fibrosis isolate strain of P. aeruginosa 8821 and hyperproduced it as a fusion protein with glutathione S-transferase. We demonstrated enhanced macrophage cell death in the presence of both the secreted and recombinant purified AK and its substrates AMP plus ATP or ADP. These data suggested that AK converts its substrates to a mixture of AMP, ADP, and ATP, which are potentially more cytotoxic than ATP alone. In addition, we observed

increased macrophage killing in the presence of AK and ATP alone. Since the presence of ATPase activity on the macrophages was confirmed in the present work, external macrophage-effluxed ATP is converted to ADP, which in turn can be transformed by AK into a cytotoxic mixture of three adenine nucleotides. Evidence is presented in this... ...P. aeruginosa. Thus, the possible role of secreted AK as a virulence factor is in producing and keeping an intact pool of toxic mixtures of AMP, ADP, and ATP, which allows P. aeruginosa to exert its full virulence.
Drug Descriptors:
* adenylate kinase--endogenous compound--ec; *virulence factor --endogenous compound--ec
adenosine diphosphate--drug toxicity--to; adenosine phosphate--drug toxicity--to; adenosine triphosphate--drug toxicity--to; glutathione transferase; recombinant enzyme
Medical Descriptors:
CAS Registry Number: ...8063-98-7 (adenosine phosphate); 15237-44-2... ...987-65-5 (adenosine triphosphate); 9013-02-9 (adenylate kinase); 50812-37-8 (glutathione transferase)
SECTION HEADINGS:

7/K/5 (Item 1 from file: 135)
DIALOG(R)File 135: NewsRx Weekly Reports

TEXT:

ATP amplification for ultrasensitive bioluminescence assay has been used to detect a single bacterial cell.

According to a study by researchers at Hiroshima University, "We developed an ultrasensitive bioluminescence assay of ATP by employing. (1) Adenylate kinase (ADK) for converting AMP + ATP to two molecules of ADP,

(2) Polyphosphate kinase (PPK) for converting ADP back to ATP (ATP amplification), and

(3) A commercially available firefly luciferase."

"A highly purified PPK-ADK fusion protein efficiently amplified ATP, resulting in high levels of bioluminescence in the firefly luciferase reaction," wrote T. Satoh and colleagues.

The researchers concluded, "The present method, which was approximately 10,000-fold more sensitive to ATP than the conventional bioluminescence assay, allowed us to detect bacterial contamination as low as one colony-forming unit of Escherichia coli per assay."

Satoh and colleagues published their study in Bioscience Biotechnology and Biochemistry (ATP amplification for ultrasensitive bioluminescence assay: Detection of a single bacterial cell. Biosci Biotechnol Biochem, 2004;68(6):1216-1220).

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